

NOTICE

All drawings located at the end of the document.

CORRES CONTROL
OUTGOING LTR NO

DOE ORDER #

04 RF 00607



June 2, 2004

04-RF-00607

DIST	LTR	ENC
Berardini, Jacqueline	X	
BRAILS FORD, M D		
FERRERA, D W	X	
FERRI, M S		
FULTON, J C		
GIACOMINI, J		
HALL, L		
MARTINEZ, L A		
PARKER, A M		
POWERS, K		
SCOTT, G K		
SHELTON, D C	X	
SPEARS, M S		
TRICE, K D		
VOORHEIS, G M		
BUTLER, J L	X	X
THORNBURG, AMY	X	

Mr Joseph A Legare, Director
Project Management Division
DOE, RFPO

Mr Steve Gunderson
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1502

Mr. Mark Aguilar
U S Environmental Protection Agency
999 18th Street, Suite 300
Denver, CO 80202-2466

TRANSMITTAL OF THE DRAFT NFAA JUSTIFICATION FOR PAC 700-143 -
JLB-051-04

Enclosed are copies of the Draft NFAA Justification for PAC 700-143 We will contact
your staff to schedule a meeting the week of June 14, to resolve comments and finalize
the text

If you have any questions, please contact me at extension 5245

J Lane Butler
Manager, Environmental Restoration Programs

JLB dm

AUTHORIZED CLASSIFIER
SIGNATURE
Exemption - CEX-105-01

Date

Orig and 1 cc - Joseph Legare
cc Norma Castaneda

IN REPLY TO RFP CC
NO

Enclosures
As Stated

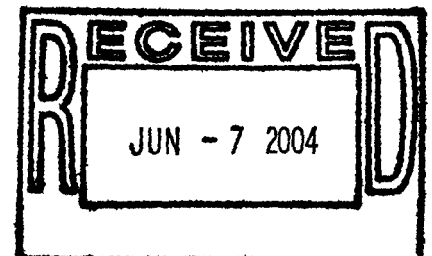
ACTION ITEM STATUS

- ☐ PARTIAL/OPEN
☐ CLOSED

LTR APPROVALS

ORIG & TYPIST INITIALS

Kaiser-Hill Company, L L C
Rocky Flats Environmental Technology Site, 10808 Hwy 93 Unit B, Golden, CO 80403-8200 • 303-966-7000



ADMIN RECORD
IA-A-002167

NO FURTHER ACCELERATED ACTION JUSTIFICATION FOR 771 OUTFALL

PAC REFERENCE NUMBER: 700-143

IHSS Reference Number 143
Unit Name 771 Outfall
Approximate Location N751,150, E2,083,525

Date(s) of Operation or Occurrence

1953 - 1965

Description of Operation or Occurrence

When Building 771 went into operation in 1953, some waste liquids passed through a storm drain located north and west of the building and into North Walnut Creek. The main source was an outfall from the Building 771 Laundry holding tanks. Other sources included the analytical laboratory and radiography sinks, the personnel decontamination room, and runoff from the roof of Building 771 and the ground areas (DOE 1992a).

Liquid wastes in the laundry holding tanks were discharged to this drain if the plutonium concentration was below 3300 disintegration per minute per liter. Between mid-1953 and mid-1957, 4.5 million gallons of liquid was released containing a total of 2.23 mCi. In 1957, a waste line was completed which allowed an option of releasing these liquids to the Building 774 release below Building 995 (Pond B-1 [PAC NE-142.5]). Due to equipment problems, periodic releases from the laundry holding tanks to the 771 outfall continued until 1965. From 1957 until 1965, 430,000 gallons were released containing an alpha activity of 0.25 mCi (DOE 1992a).

The other release sources for the 771 Outfall went directly to the storm sewer and there is no documentation of the liquid quantity or quality. For example, on April 9, 1958, it was noted that a decontamination sink was tied into a process waste drain that emptied into Walnut Creek north of Building 773. Water continuing to drain through the pipe and outfall undoubtedly contributed to the spread of contamination in to Walnut Creek (DOE 1992a).

In May 1971, a sewer line break resulted in storage tanks overflowing through the 771 Outfall (DOE 1992a).

During the week ending August 4, 1978, a hot spot approximately 875 square feet in size was found near a culvert northwest of the Building 771 parking lot (DOE 1992a).

Physical/Chemical Description of Constituents Released

Plutonium contaminated wastewaters also contained soaps and detergent which originated from the Building 771 laundry, analytical laboratory, and radiography areas and a decontamination sink (DOE 1992a)

Site Survey Monthly Reports from 1955 were obtained. They characterize the releases by reporting the monthly alpha activities in the waters released to the environment. The alpha activity reported for the "71 Building to Walnut Creek" releases ranged from 1.03×10^{-4} to 2.2×10^{-4} curies for 1955 (DOE 1992a)

As early as 1953, contamination at the outfall was measured at 17,400 dpm/g in the soil. Contamination of the soil at the discharge was reported in May 1956 with the highest sample being 130 dpm/g gross alpha activity. In April 1958, instrument readings of up to 8,000 counts per minute were obtained on the rocks in the area. In May 1958, contamination of the soil was reported to be as high as 2,000 dpm/g gross alpha activity (DOE 1992a)

In addition to the waters released from Building 771, a soil stabilizing solution was frequently applied during remedial activities (see below) in 1971. The stabilizer was a mixture of water, ethylene glycol, and Dowell J-197 soil stabilizer (DOE 1992a)

Responses to Operation or Occurrence

Discharges of laundry waste to the outfall ceased in 1965. Remediation activities which followed are detailed below (DOE 1992a)

- ◆ "Initial discovery" of the hot spot occurred in April 1970 with samples greater than 190,000 dpm/g plutonium. The area was then subject to frequent soil sampling and some monitoring with direct counting instruments. The sampling continued throughout the remediation process. Soil samples ranged from 28,621 to 229,290 dpm/g plutonium on October 19, 1970 (prior to soil removal activities). On February 18, 1971, activities ranged from 47 to 4,437 dpm/g plutonium during soil removal.
- ◆ Sampling in April 1970 also found 12 dpm/g gross alpha activity in the water draining through the effluent pipe.
- ◆ In September 1970, approximately 75 cubic feet of contaminated soil was removed from the area. Another document states that in September two 55-gallon drums of contaminated soil were removed.
- ◆ In the January 1971, the Health Physics Operations Group Technical and Construction Report stated that recent instrument surveys taken in the ditch indicated the prior removal of two barrels of soil and vegetation was insufficient. The removal resumed in February 1971. As of February 18,

1971, there were no known open drain lines from the building to the outfall

- ◆ A letter dated February 19, 1971 stated that, although it had been requested that the drain pipe to the outfall be capped, the capping would be withheld. This was because the water running out of it was not contaminated at that time and it was being checked daily by Health Physics.
- ◆ As of February 26, 1971, approximately 350 cubic feet of contaminated soil had been removed and barreled from an area of about 750 square feet. It was believed that no contamination had been spread by the wind because the outfall was in a depression about 20 feet deep at the bottom of a hill, the soil was constantly moist and the area was covered with grasses and cattails.
- ◆ In early March 1971, water collected from the effluent pipe at the outfall was analyzed and found to have gross activity of 9.60 pCi/l. A typical Rocky Flats water sample averaged about 40 pCi/l at the time.
- ◆ Operations during May 1971 consisted of transferring contaminated mud from 23 used drums to new drums with provisions to absorb any contained liquid. Digging was to be resumed as the weather improved and the mud dried.
- ◆ By August 31, 1971, the removal of soil was complete. It had started in February 1971 and resulted in 149 drums that were shipped as hot waste (presumably offsite but this was not specified in the documentation found). Cement was added to each drum before and after filling to absorb any contained liquid. The contaminated area was approximately 800 square feet with contamination being as deep as 3.5 feet in one small area. The maximum soil sample result was 39,000 dpm/g. Final survey of the area showed no direct alpha count greater than 250 c/m. Final soil sampling averaged 34 dpm/g with a maximum of 150 dpm/g.

Clean up of the soil found in the culvert in August 1978 occurred during the summer of 1980. The removal was complete by July 18, 1980, resulting in nine boxes of contaminated soil. The removal was done to allow for the construction of the PSZ. The area that formally was the outfall culvert has been filled in with soil and is now a paved parking lot for building 771. Filling and parking lot construction occurred some time after the soil removal in 1980 (DOE 1992a).

Fate of Constituents Released to Environment

Environmental data was collected for PAC 700-143 pursuant to the Phase 1 RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Plan for the Walnut Creek Priority Drainage (OU 6) (DOE 1992b), and was reported in the Phase 1 RFI/RI Report (DOE 1996).

In 1993, soil borings were drilled in the IHSS as part of the Phase 1 RFI/RI (Figure 2). The IHSS was located from the review of historical aerial photographs and plans that

depict the 771 Outfall, and the borings were located in the field by measuring distances and bearings from existing landmarks identified on the aerial photographs and plans (DOE 1996) in order to exactly target the outfall area. One of the boreholes (60592) was subsequently converted to an alluvial monitoring well (77492). An additional boring in the area (43792) had been drilled and sampled in the previous year (1992), and this data has also been used in this evaluation. The borings penetrated the 8 to 10 feet of fill that was present in the area so that samples of pre-fill soils were collected at the lower depths. Four of the boreholes were selected for surface soil sampling (SS600092 through SS600392).

As can be seen from Table 1, surface soil, subsurface soil, and groundwater samples have been analyzed for metals, radionuclides, volatile organic compounds (VOCs) (except surface soils), semivolatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs) and Water Quality Parameters (WQP). Groundwater was sampled frequently between 1993 and 1995.

The surface soil, subsurface soil, and groundwater data are summarized in Tables 2 through 4. These tables show analytes that were detected above background (see discussion below). In these tables, the following decision rules were applied to the calculation of summary statistics:

- 1 Data rejected during validation was eliminated from the data set before computing statistics
- 2 The maximum value is the highest detected value observed
- 3 The average was computed using only data that are above background concentrations

Figures 3 through 5 show for surface soil, subsurface soil, and groundwater, all the data that were detected above background, and that have a RFCA AL [Wildlife Refuge Worker (WRW) soil/sediment AL or groundwater AL]. The ALs are from RFCA Attachment 5, dated June 5, 2003 (DOE et al. 2003). Background levels for inorganic constituents for subsurface soil and groundwater are from the Background Geochemical Characterization Report (DOE 1993). Background values for surface soils are from the Geochemical Characterization of Background Surface Soils Background Soils Characterization Program (DOE 1995). All background values used for comparison are the mean background value plus two standard deviations. Any detection of an organic compound is considered an above background level observation.

SURFACE SOIL ASSESSMENT

As shown in Table 2 and Figure 3, the surface soil at PAC 700-143 contains above background concentrations of several metals, plutonium, and several SVOCs. The metal and plutonium concentrations, albeit above background levels, were of the same order of magnitude as the background levels and well below the WRW ALs. SVOC concentrations were all below the WRW ALs, and generally by a large margin.

APPLICATION OF THE SUBSURFACE SOIL RISK SCREEN

Screen 1 – Are Contaminant of Concern (COC) Concentrations Below RFCA Attachment 5, Table 3 Wildlife Refuge Worker (WRW) Soil Action Levels?

Yes As shown in Table 3 and Figure 4, the subsurface soil at PAC 700-143 contains above background concentrations of barium and strontium, Aroclor-1254, radionuclides and VOCs The metals were detected above background infrequently, and their concentrations are well below the WRW ALs Aroclor-1254 was detected only once and at a concentration an order of magnitude lower than the WRW AL The radionuclides were detected more frequently above background than the metals, but at concentrations 2 orders of magnitude below the WRW ALs Methylene chloride and toluene were the VOCs detected in the subsurface soil Methylene chloride was detected in only one of the 26 samples and at a very low concentration (5 ug/kg) Toluene was detected in all of the subsurface soil samples The toluene concentrations do not portray a clear vertical or horizontal distribution pattern, however, concentrations tend to be highest at depth intervals greater than 8 to 10 feet, i e , the depth of the overlying fill in the area Regardless, the concentrations are several orders of magnitude lower than the WRW AL

In accordance with Figure 3 of RFCA Attachment 5, Screen 4 is performed next given a “yes” response to Screen 1

Screen 4 – Is there an environmental pathway and sufficient quantity of COC that would cause exceedance of surface water standards (SWS)?

No As discussed below, the soil and groundwater data indicate this PAC would not cause exceedance of surface water ALs

Contaminant migration via erosion and groundwater are the two possible pathways whereby surface water could become contaminated by PAC 700-143

Erosion is an insignificant pathway because subsurface soil with contaminant concentrations greater than background at PAC 700-143 is covered with 8 to 10 feet of fill, and the surface soil constituent concentrations are at levels that are just above background (inorganics) or well below WRW ALs (organics) In addition, the organic compounds were only detected in half the samples

With respect to the groundwater pathway, alluvial well 77492 is directly downgradient of PAC 700-143 (groundwater will flow toward the unnamed drainage and North Walnut Creek) As can be seen from Figure 5, there are only a few metals, a pesticide (alph-BHC), a SVOC (bis(2-ethylhexylphthalate), and a VOC (carbon tetrachloride) that were detected above Tier II groundwater ALs These organic compounds were not detected in the subsurface soil (or surface soil) and therefore PAC 700-143 does not appear to be a source of these constituents in groundwater As for the metals, aluminum and manganese

are major components of clay, and are likely present in the groundwater as finely divided clay particles. The other metal concentrations were near the Tier II groundwater ALs. Beryllium and lead, the metals most frequently detected above the Tier II groundwater ALs, were not present above background in surface or subsurface soil at PAC 700-143. Lastly, the concentrations of all the above noted constituents in groundwater are well below the Tier I groundwater ALs. In accordance with RFCA Attachment 5, exceedances of Tier I groundwater ALs are used to identify groundwater "sources" that may need to be addressed with an accelerated action to protect surface water quality. Therefore, PAC 700-143 is not a candidate for such an accelerated action.

NFAA Summary

PAC 700-143 is proposed for NFAA. The Subsurface Soil Risk Screen and ALs in RFCA Attachment 5 (DOE et al 2003) have been applied to the characterization data for this PAC. The risk screen does not indicate that soil removal is necessary. Surface and subsurface soil constituents that are above background are at concentrations well below the WRW ALs. Constituents above background in local alluvial groundwater are at concentrations well below the Tier I groundwater ALs, and almost all of these constituents were not identified as being above background in surface and subsurface soil at the PAC. It appears that previous remedial activities at this IHSS effectively addressed the release of contamination, and it is concluded that no further accelerated action is required at PAC 700-143.

References

DOE, 1992a, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO, June

DOE, 1992b, *Final Phase I RFI/RI Work Plan*, Rocky Flats Plant Walnut Creek Priority Drainage (Operable Unit No. 6), Rocky Flats Plant, Golden, Colorado May

DOE, 1993, *Background Geochemical Characterization Report*, Golden, CO, September

DOE, 1995 *Geochemical Characterization of Background Surface Soils Background Soils Characterization Program*, Golden, CO, May

DOE, 1996, *Final Phase I RFI/RI Report Walnut Creek Priority Drainage, Operable Unit 6*, RF/ER-95-0119 UN, Rev 0 Rocky Flats Environmental Technology Site, Golden, CO, April

DOE, CDPHE, EPA, 2003, *Modifications to the Rocky Flats Cleanup Agreement Attachment*, U.S. Department of Energy, Colorado Department of Public Health

and Environment, and U S Environmental Protection Agency, Rocky Flats
Environmental Technology Site, Golden, Colorado, June

Table 1 PAC 700-143 Analytical Program

Location Code	Sample Type	Analyte Class							
		Total Rads	Diss Rads	Tot Metals	Diss Metals	VOCs	SVOCs	Pesticides/PCBs	WQP
SS600092	Surface Soil	X		X			X	X	X
SS600192	Surface Soil	X		X			X	X	X
SS600292	Surface Soil	X		X			X	X	X
SS600392	Surface Soil	X		X			X	X	X
60092	Subsurface Soil	X		X		X	X	X	X
60192	Subsurface Soil	X		X		X	X	X	X
60292	Subsurface Soil	X		X		X	X	X	X
60392	Subsurface Soil	X		X		X	X	X	X
60492	Subsurface Soil	X		X		X	X	X	X
77492	Subsurface Soil	X		X		X	X	X	X
77492	GW	X		X		X	X	X	X

Notes

All subsurface soil intervals were analyzed for the analytical suites shown

No less than 9 groundwater samples were collected and analyzed for the analytical suites. Sample collection dates are primarily from 1993 through 1995

Table 2 Summary of Constituents Above Background in Surface Soil

Analyte Group	Analyte	Total Number Samples Analyzed	Detection Frequency	Average Conc	Maximum Conc	BG Mean Plus 2SD	WRW AL	Unit*
Metal	Barium	4	50%	156	170	141.3	26400	mg/kg
Metal	Chromium	4	25%	17.7	17.7	17.0	268	mg/kg
Metal	Cobalt	4	25%	12.9	12.9	10.9	1550	mg/kg
Metal	Iron	4	25%	21300	21300	18037.0	307000	mg/kg
Metal	Manganese	4	25%	374	374	365.1	3480	mg/kg
Metal	Nickel	4	75%	19	21.3	14.9	20400	mg/kg
Metal	Strontium	4	25%	53.8	53.8	48.9	613000	mg/kg
Metal	Zinc	4	25%	85.4	85.4	73.8	307000	mg/kg
Radionuclide	Plutonium-239/240	4	50%	0.39	0.52	0.066	50	pCi/g
SVOC	Anthracene	4	25%	660	660	-	204000000	ug/kg
SVOC	Benzo(a)anthracene	4	50%	1255	1800	-	34900	ug/kg
SVOC	Benzo(a)pyrene	4	50%	1635	2300	-	3490	ug/kg
SVOC	Benzo(b)fluoranthene	4	50%	2200	3200	-	34900	ug/kg
SVOC	Benzo(k)fluoranthene	4	50%	835	1200	-	349000	ug/kg
SVOC	Chrysene	4	50%	1155	1600	-	3490000	ug/kg
SVOC	Fluoranthene	4	50%	2050	2700	-	27200000	ug/kg
SVOC	Indeno(1,2,3-cd)pyrene	4	25%	890	890	-	34900	ug/kg
SVOC	Pyrene	4	50%	1950	2800	-	22100000	ug/kg
WQP	Nitrate	4	25%	1.41	1.41	-	1000000	mg/kg
Exceeds Wildlife Refuge Worker Action Level								

BG – Background

WRW – Wildlife Refuge Worker

AL – Action Level

Table 3 Summary of Constituents Above Background in Subsurface Soil

Analyte Group	Analyte	Total Number Samples Analyzed	Detection Frequency	Average Conc	Maximum Conc	BG Mean Plus 2SD	WRW AL	Unit
Metal	Barium	10	10%	1150	1150	289	26400	mg/kg
Metal	Strontium	10	10%	279	279	211	613000	mg/kg
PCB	Aroclor-1254	7	14%	940	940		12400	ug/kg
Radionuclide	Americium 241	4	75%	0.07	0.09	0.02	76	pCi/g
Radionuclide	Plutonium-239/240	10	30%	0.18	0.28	0.02	50	pCi/g
Radionuclide	Uranium 238	10	10%	1.5	1.6	1.49	351	pCi/g
VOC	Methylene chloride	26	4%	5	5		2530000	ug/kg
VOC	Toluene	26	100%	244	1200		31300000	ug/kg
WQP	Nitrate	7	100%	4.6	14.5		1000000	mg/kg
Exceeds Wildlife Refuge Worker Action Level								

BG – Background

WRW – Wildlife Refuge Worker

AL – Action Level

Table 4 Summary of Constituents Above Background in Groundwater

Analyte Group	Analyte	Total Number Samples Analyzed	Number of Samples exceeding BG but less than Tier II AL	Number of Samples exceeding Tier I AL but less than Tier II AL	Number of Samples exceeding Tier II AL	Average Conc.	Maximum Conc.	BG Mean Plus 2SD	Tier II Action Level	Tier I Action Level	Unit
Metal	Aluminum	8	3	5	0	53.15	105.00	11.24	36.5	3650	mg/L
Metal	Arsenic	9	9	0	0	0.01	0.02	0.01	0.05	5	mg/L
Metal	Barium	9	8	1	0	0.81	2.47	0.19	2	200	mg/L
Metal	Beryllium	9	1	4	0	0.01	0.03	0.003	0.004	0.4	mg/L
Metal	Chromium	9	6	1	0	0.08	0.22	0.02	0.1	10	mg/L
Metal	Cobalt	9	3	0	0	0.06	0.09	0.03	2.19	219	mg/L
Metal	Copper	9	4	0	0	0.09	0.19	0.04	1.3	130	mg/L
Metal	Lead	9	1	8	0	0.05	0.18	0.01	0.015	1.5	mg/L
Metal	Lithium	9	1	0	0	0.17	0.17	0.13	0.73	73	mg/L
Metal	Manganese	9	0	9	0	3.03	5.05	0.30	1.72	172	mg/L
Metal	Mercury	9	4	0	0	0.001	0.002	0.00	0.002	0.2	mg/L
Metal	Nickel	9	2	1	0	0.12	0.22	0.03	0.14	14	mg/L
Metal	Strontium	9	6	0	0	1.16	1.79	0.85	21.9	2190	mg/L
Metal	Tin	9	2	0	0	0.15	0.19	0.10	21.9	2190	mg/L
Metal	Vanadium	9	6	1	0	0.14	0.37	0.04	0.256	25.6	mg/L
Metal	Zinc	9	4	0	0	0.34	0.67	0.14	11	1100	mg/L
Pesticide	4,4'-DDD	9	1	0	0	0.03	0.03	-	0.355	35.5	ug/L
Pesticide	alpha-BHC	9	1	1	0	0.02	0.02	-	0.0135	1.35	ug/L
Radionuclide	Americium-241	9	4	0	0	0.07	0.11	0.03	0.145	14.5	pCi/L
SVOC	bis(2-Ethylhexyl)phthalate	10	2	2	0	8.50	9.00	-	6	600	ug/L
VOC	1,1-Dichloroethane	12	2	0	0	0.35	0.60	-	3650	365000	ug/L

Analyte Group	Analyte	Total Number Samples Analyzed	Number of Samples exceeding BG but less than Tier II AL	Number of Samples exceeding Tier II AL but less than Tier I AL	Number of Samples exceeding Tier I AL	Average Conc.	Maximum Conc.	BG Mean Plus 2SD	Tier II Action Level	Tier I Action Level	Unit
VOC	1,1-Dichloroethene	12	1	0	0	0.20	0.20	-	7	700	ug/L
VOC	1,2-Dichloroethene (total)	7	1	0	0	2.00	2.00	-	70	7000	ug/L
VOC	Acetone	7	1	0	0	4.00	4.00	-	3650	365000	ug/L
VOC	Carbon Tetrachloride	12	6	2	0	4.17	8.00	-	5	500	ug/L
VOC	Chloroform	12	3	0	0	1.40	3.00	-	100	10000	ug/L
VOC	Methylene chloride	12	3	0	0	2.53	4.00	-	5	500	ug/L
VOC	Tetrachloroethene	12	2	0	0	0.15	0.20	-	5	500	ug/L
VOC	Trichloroethene	12	3	0	0	0.10	0.10	-	5	500	ug/L
WQP	Ammonia	4	4	0	0	0.58	0.64	-	35.4	3540	mg/L
WQP	Nitrite	6	2	0	0	0.07	0.20	0.04	1	100	mg/L
WQP	Sulfate	6	6	0	0	66713.83	78000	-	500000	50000000	ug/L
Exceeds Tier II Action Level											
Note: Data are for well 77492											
BG - Background											
AL - Action Level											
* Organic detections, estimated or otherwise, are considered to be above background concentrations											

Figure 1
IHSS 143 Location

KEY

-  Paved road
-  Demolished building
-  Standing building



500 0 500 Feet
Scale 1:6800
State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

U S Department of Energy
Rocky Flats Environmental Technology Site

Prepared by _____ Date 04 27 04

Prepared for



KAISER-HILL
COMPANY

File W:\Project\FY2004\ice
IHSS143\IHSS_143.ap



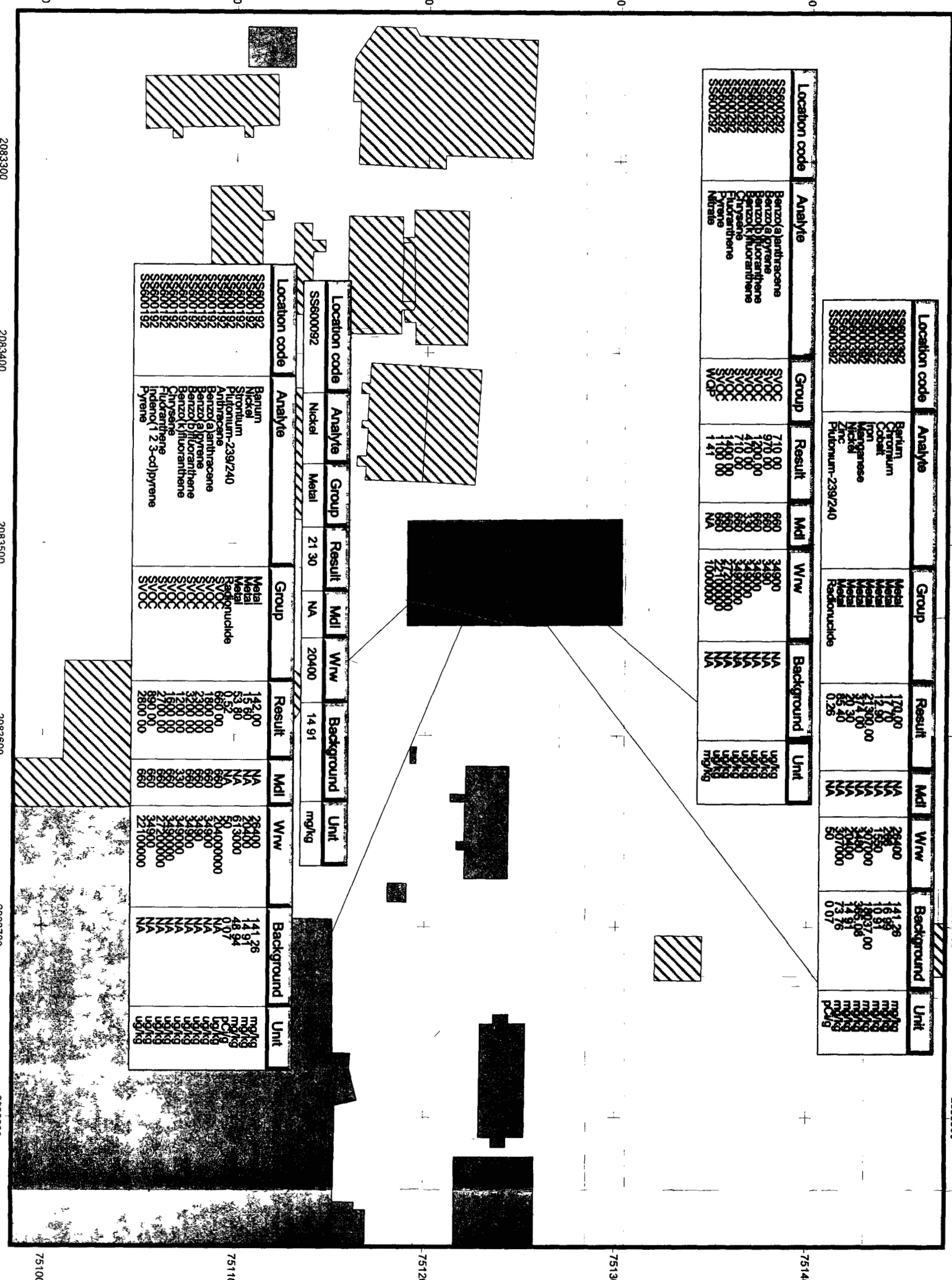



Figure 3
IHSS 143
Distribution of Constituents
Above Background in Surface Soil

- KEY**
- Sample Location
 - IHSS
 - ▨ Demolished building
 - ▩ Standing building



Scale 1 650

State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

U S Department of Energy
Rocky Flats Environmental Technology Site

Prepared by

Date 04.27.04

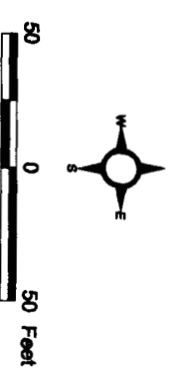
Prepared for

KAISER•HILL
COMPANY

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Figure 4
IHSS 143
Distribution of Constituents
Above Background in
Subsurface Soil

- KEY
- Sample Location
 - IHSS
 - Demolished building
 - Paved roads
 - Standing building



Scale = 1:820
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by
Date: 04/27/04

Prepared for



File: W:\Projects\FY2004\com...
IHSS143\IHSS_143.apr

